

sideration. Beginning at the most northerly, that is the station nearest the storm center, these times were: Albany, N. Y., 6:15 a. m., August 3; Binghamton, N. Y., 9:30 a. m., 3d; New York, N. Y., 11:50 p. m., 2d; Philadelphia, Pa., 2 a. m., 3d; Harrisburg, Pa., 7 a. m., 3d; Baltimore, Md., 12:25 a. m., 3d; Washington, D. C., 1:30 a. m., 3d.

In looking for an explanation of the severity of the storms in New Jersey and Maryland are met with that bugbear of almost all scientific investigation, "insufficient data." The only suggestion we have to offer is that the atmosphere in the localities named was more humid (relative humidity 92 per cent at Washington, D. C., and 82 per cent at Baltimore, Md., on the morning of the 2d) and that the vertical circulation, as indicated by the formation of cloud early in the day, was more active than in adjacent districts. The eastward drift of the cyclonic system that covered the Lake region in the morning would bring it into districts whose atmospheric conditions, from the causes just mentioned, were already in a highly favorable state for the development of thunderstorms. This might also be offered as accounting, in a measure, for the severity of the storm.

OBSERVATIONS AT RIVAS, NICARAGUA.

Simultaneous observations at 1 p. m. Greenwich (or 7:17 a. m. local) time, August, 1899.

Date.	Temperature.		Wind.		Upper clouds.			Lower Clouds.		
	Air.	Dew-point.	Direction.	Force.	Kind.	Amount.	Direction from.	Kind.	Amount.	Direction from.
1.....	79	73	se.	5	ok.	10	sw.	k.	Few*	se.
2.....	79	73	se.	5	ok.	10	sw.	k.	Few	se.
3.....	79	73	se.	5	ok.	10	sw.	k.	Few	se.
4.....	77.5	74	ne.	5	ok.	10	sw.	k.	Few	se.
5.....	78.5	75	ne.	5	ok.	10	sw.	k.	Few	se.
6.....	79.5	76	ne.	5	ok.	10	sw.	k.	Few	se.
7.....	79.5	76	ne.	5	ok.	10	sw.	k.	Few	se.
8.....	80	77	ne.	5	ok.	10	sw.	k.	Few	se.
9.....	80	77	ne.	5	ok.	10	sw.	k.	Few	se.
10.....	80	77	ne.	5	ok.	10	sw.	k.	Few	se.
11.....	79.5	76	ne.	5	ok.	10	sw.	k.	Few	se.
12.....	80.5	77	ne.	5	ok.	10	sw.	k.	Few	se.
13.....	80	77	se.	5	ok.	10	sw.	k.	Few	se.
14.....	77.5	75	nw.	5	ok.	10	sw.	k.	Few	se.
15.....	80	76	e.	5	ok.	10	sw.	k.	Few	se.
16.....	78.5	75	ne.	5	ok.	10	sw.	k.	Few	se.
17.....	80	77	ne.	5	ok.	10	sw.	k.	Few	se.
18.....	80	77	se.	5	ok.	10	sw.	k.	Few	se.
19.....	78	74	ne.	5	ok.	10	sw.	k.	Few	se.
20.....	78.5	75	ne.	5	ok.	10	sw.	k.	Few	se.
21.....	79	76	ne.	5	ok.	10	sw.	k.	Few	se.
22.....	80	77	e.	5	ok.	10	sw.	k.	Few	se.
23.....	79	76	ne.	5	ok.	10	sw.	k.	Few	se.
24.....	78.5	75	se.	5	ok.	10	sw.	k.	Few	se.
25.....	76	73	ne.	5	ok.	10	sw.	k.	Few	se.
26.....	74	71	↑	0	ok.	10	sw.	k.	Few	se.
27.....	75.5	72	ne.	5	ok.	10	sw.	k.	Few	se.
28.....	75.5	72	ne.	5	ok.	10	sw.	k.	Few	se.
29.....	77	73	ne.	5	ok.	10	sw.	k.	Few	se.
30.....	75.5	72	ne.	5	ok.	10	sw.	k.	Few	se.
31.....	76.5	74	se.	1	ok.	10	sw.	k.	Few	se.
Means....	78.4									
Departure	+1.50									

* On Ometepe.

† n. by w.

Climatological observations for twenty-four hours ending at 7:17 a. m. local (or 1 p. m. Greenwich) time, August, 1899.

Date.	Temperature.		Wind.		Average cloudiness.	Total rainfall.
	Maximum.	Minimum.	Prevailing direction.	Maximum force.		
1.....	82	77.5	ene.	5	9	0.00
2.....	88	77	e., se.	7	3	0.00
3.....	87.8	77.6	ne-e.	5	5	0.01
4.....	86	78	ne.	5	9	0.19
5.....	87.5	76	ne.	4	7	0.02
6.....	88	77	ne.	6	6	0.06
7.....	85.8	78	ne.	5	9	0.00
8.....	89	78	ne.	7	8	0.00
9.....	87	79	ne-e.	6	6	0.00
10.....	89	77.6	ne.	5	7	0.00
11.....	88	78	ne.	4	3	0.03
12.....	87	78	ne.	8	8	0.00
13.....	89.1	78	ne.	3	10	0.00
14.....	86	79	se.	5	10	0.17
15.....	87	77	ese.	4	7	0.58
16.....	88	78	ne-e.	5	9	0.08
17.....	86.5	77	ne.	4	7	0.04
18.....	87	78.8	ne.	5	8	0.01
19.....	81	76	e-ne.	6	10	1.20
20.....	85.5	78	ne., se.	5	6	0.20
21.....	84	77.4	ne-e.	5	7	0.46
22.....	82.5	77.5	ne-se.	7	7	0.06
23.....	83	78	*	7	4	T.
24.....	83	79	ne-se.	6	7	0.35
25.....	84.3	77.5	e-se.	7	10	0.34
26.....	80.2	74.5	ne-se.	3	9	2.22
27.....	78	74	n-se.	2	10	1.02
28.....	82	75	ne-e.	4	9	0.00
29.....	84.5	76	ne.	6	6	0.07
30.....	84	76	ne-se.	5	8	1.40
31.....	85	78.5	ne-e.	3	7	0.22
Sums.....						+9.28
Means.....	85.0					
Departure						+1.31

* ne. by e.

+0.02 inch that fell on July 31 should be added to the above, and 0.05 that fell on the afternoon of August 31 should be transferred to the September rainfall, thus the corrected rainfall for August becomes 9.35.

The records contributed for many years by Dr. Earl Flint, at Rivas, Nicaragua, include barometric readings. His present station is at 11° 26' N., 85° 47' W. The observations at 7:17 a. m., local time, are simultaneous with Greenwich 1 p. m. The altitude of this barometer is now said to be 4 feet above ground; the thermometer 6 feet above ground; the rain gage 7 feet above ground. The ground is 210 feet above sea level. Until the barometer has been compared with a standard it seems hardly necessary to publish the daily readings. The wind force is recorded on the Beaufort scale, 0-12. When cloudiness is less than $\frac{1}{10}$, the letter "F," or "Few," is recorded.

This station is situated on the western shore of Lake Nicaragua, not far from the eastern end of the western division of the Nicaragua Canal. The volcano Ometepe, on an island in Lake Nicaragua, is about 10 miles northeast of the station. Dr. Flint's records occasionally mention the presence of clouds on the summit of this mountain.

Dr. Flint's reports to the Weather Bureau now embrace two distinct features, namely, the simultaneous morning observations and the daily climatological summary, as given in the two preceding tables for each month.

NOTES BY THE EDITOR.

A NEWSPAPER TORNADO FAKE.

In mining engineering a fake is a worthless, deceptive stratum among the valuable ones; in theatrical usage it means a worthless piece of stage property or rubbish; in popular American usage it means a story that is plausible, and at first readily believed, but on investigation turns out to be a

fiction that was intended to deceive, i. e., a cheat and a lie.

We regret to have to use this word so often, but it is expressive and appropriate. The popular interest in meteorology is intense, and thousands whose business depends upon knowing the exact truth do not generally care to stop and investigate a dubious startling novelty—they come straight to the Weather Bureau and overwhelm our observers with questions; they seem to look to the Bureau to protect them

from fake alarms quite as implicitly as from genuine storms and frosts.

Fakes are not mere harmless jokes; they often lead to important public action. The "promoter" of a wild cat money-making scheme, a South Sea Bubble, or other fraud, is a fakir; his story is a fake, and a whole nation may be prostrated by being drawn into the delusion. We in America have had Locke's Moon Hoax, and numberless artificial rain delusions to warn us of the danger of allowing errors and fakes to spread freely and uncontroverted through the daily papers.

Several eastern papers reprinted in July, from the San Francisco Call, the story about John Rhodes, the Rough Rider and his cannon in the town of Hennessey, Okla., where "three times this year has a charge of salt, fired from an old Armstrong cannon put waterspouts and tornadoes out of business."

The Weather Bureau observer at Oklahoma, Okla., informs us that the whole story is a fiction; nothing whatever has occurred at Hennessey to warrant such a reflection upon the common sense of its inhabitants.

DISPLAY OF FORECAST CARDS ON STREET LETTER BOXES.

From a note in the July report of the Alabama Section, we learn that Mr. F. P. Chaffee, Section Director at Montgomery, has put into operation the system of displaying local forecast cards on the street letter boxes. A neat tin pocket is placed over each letter box, and the forecast cards are furnished to the letter carriers who post them as they make their regular rounds. A similar arrangement is also in force at Springfield, Mo. This cooperation of the post office officials involves but little labor on their part, and is highly appreciated by the public.

IMPROVEMENTS IN MAP OF THE SECTION REPORTS.

We notice that several of the recent section reports are printed upon a more highly calendered paper than has hitherto been used. The soft paper does not allow of printing very delicate maps by the chalk plate process, but the more highly calendered surface and greater pressure bring out more delicate details and give a finer appearance to the printed map.

CHEMISTRY OF VEGETATION.

Mr. E. A. Evans, Section Director, Richmond, Va., publishes in the July report of the Virginia Section the concluding portion of an article on the green coloring of plants, which was originally published in Harper's Monthly for April, 1897. The whole question of vegetable physiology, both from a chemical and physical point of view, is very obscure and yet its importance requires us to carefully consider every new observation and theory. In general, every plant adapts itself to its surroundings and as the latter present an infinite variety of combinations of soil and climate, therefore a corresponding variety is found in plant life. Modern agriculture is largely a matter of general experience and field statistics, but in some cases decided improvements have been suggested by the minute studies of the chemists and physicists.

THE DIRECTION OF ROTATION.

Objection has been made to the Editor's note on page 157 in reference to the use of the term "from right to left or counter clockwise." He is assured that the expression "the

whirling motion was from right to left" would generally be considered as quite clear and precise, and that this will always be understood to mean that "the whirling motion was from the right-hand forward over to the left-hand." If this were a well-recognized meteorological usage, the expression "from right to left" would be clear, precise, and satisfactory; but as there may be some doubt on the subject, the Editor thinks that the expression "from the right-hand forward over to the left, or simply "from the right-hand forward" would be a better form if any one needed to replace the well-recognized technical expression "counter clockwise." The expressions "clockwise" and "counter clockwise" are preferable in meteorology.

In machinery and mechanics the term "right-handed screw" is applied to one that moves forward when turned in the direction from the left forward over to the right, or clockwise, doubtless because this is the easiest twist for the right-hand to give. Hurricanes and tornadoes in the Northern Hemisphere generally revolve counter clockwise, as charted on daily maps, or from the right-hand forward over to the left, or from the right-hand forward; so also does the earth itself, both in its diurnal rotation around its axis, and its annual revolution around the sun, when looked at from the northern side.

The term right-handed rotation is applied to a body passing from in front of us around by the right to the rear, or one that passes from above and in front of us downward and over to the right until it comes below its first position; these both correspond to the clockwise rotation. A ray of polarized light is said to have right-handed rotation when, as it moves forward, it also rotates clockwise.

In botany the tendril of a climbing plant may be spoken of as growing forward with a right-handed twist, whereas some authors formerly used the opposite term because they considered themselves as standing in front of the tendril and looking back at it as it twisted forward toward them.

Similarly in meteorology the ascending air in a tornado seems to rotate counter clockwise if we look down upon it from above, but if we look from below upward in the direction in which it is rising or advancing then we see that it has the right-handed twist or the positive rotation, as that term is used in mechanics, electricity, and magnetism. In mathematical studies, the direction of rotation should be stated as it appears to a person who is looking forward in the direction of the motion of translation or in the direction of the positive distances if there be no motion of translation. The terms *positive* and *negative* belong to mathematics and mechanics; the terms *clockwise* and *counter clockwise* may be retained in descriptive meteorology.

We quote the following from page 24, Vol. I of Maxwell's "Treatise on Electricity and Magnetism":

The combined action of the muscles of the arm when we turn the upper side of the right-hand outward, and at the same time thrust the hand forward, will impress the right-handed screw motion on the memory more firmly than any verbal definition. A common corkscrew may be used as a material symbol of the same relation.

Prof. W. H. Miller has suggested to me that as the tendrils of the vine are right-handed screws and those of the hop left-handed the two systems of relations in space might be called those of the vine and the hop, respectively.

The system of the vine which we adopt is that of Linnæus, and of screw-makers in all civilized countries except Japan. De Candolle was the first who called the hop tendril right-handed and in this he is followed by Listing, and by most writers on the circular polarization of light. Screws like the hop tendril are made for the couplings of railway carriages, and for the fittings of wheels on the left side of ordinary carriages, but they are always called left-handed screws by those who use them.